GENERAL SPECIFICATIONS

1. The project shall be constructed according to the plan set. The Contractor shall notify the Construction Manager of any changes prior to implementation. The Construction Manager for this project shall be River Design Group, Inc. or designated representative.

2. It is the Contractor's responsibility to identify all underground utilities prior to construction.

3. Costs incurred due to project delays resulting from failure of the Contractor to meet the requirements of the general specifications, contractor qualifications, construction specifications, materials specifications and revegetation specifications shall be the expense of the Contractor.

CONTRACTOR QUALIFICATIONS

1. The Contractor shall have at least two (2) years of river restoration construction experience and shall have completed at least five (5) river restoration projects. Or, the Contractor shall have at least one (1) year of river restoration experience, shall have completed at least three (3) river restoration projects, and shall have completed an approved river restoration training class. Approved training classes include those sponsored by Wildland Hydrology, Inc., or a similarly qualified practitioner of natural channel design stream restoration principles.

2. If the Contractor chooses to designate an employee without qualified stream restoration experience, the Contractor shall be on-site at all times when the employee is performing river restoration work. Failure to abide by this condition without previous agreement with the Construction Manager would be grounds for termination.

3. The Contractor shall maintain at least $2,000,000 in liability insurance and have proof of liability insurance on-site during the entirety of project construction.

4. The Contractor shall have proof of worker's compensation insurance on-site during the entirety of project construction.

5. Copies of all project permits shall be posted on-site in a visible location. The Contractor shall comply with the provisions of the permits. The Contractor shall notify the Construction Manager of any known changes or activities that could violate permit requirements prior to implementation. The Construction Manager shall be responsible for all correspondence with USFWS and Swan Ecosystem Center.

MATERIALS SPECIFICATIONS

1. The Contractor shall furnish all materials necessary to construct the project. The contractor shall deliver all materials to the designated stockpile locations labeled on the plan set or to a location specified by the Construction Manager. If a material source has been pre-determined, the Construction Manager shall provide directions to the Contractor.

2. Material quantities, dimensions and sizes shall conform to the notes and specifications provided on the plan set or on the materials list.

3. The Construction Manager shall inspect and approve all materials prior to construction. If materials do not meet the minimum requirements specified in the plan set or material list, the Construction Manager shall reject the materials.

REVEGETATION SPECIFICATIONS

1. The Contractor shall furnish all plants, seed, growing media and equipment necessary to revegetate the project. The Contractor shall deliver all materials to the designated stockpile locations labeled on the plan set or to a location specified by the Construction Manager. If a plant source has been pre-determined, the Construction Manager shall provide directions to the Contractor.

2. Planting prescriptions, quantities, densities, and sizes shall conform to the notes and specifications provided on the plan set, the materials list, and the revegetation plan.

3. Growing media (topsoil, hydromulch, compost) shall be clean and free of pesticides, herbicides, heavy metals, solid waste and sewage.

4. The Construction Manager shall inspect and approve all plants and materials prior to planting. If plants or materials do not meet the minimum requirements specified in the plan set or material list, the Construction Manager shall reject the materials.

5. Revegetation equipment shall avoid crossing newly constructed stream channels. Revegetation equipment shall minimize impacts to stream banks and existing vegetation.

6. Native grass seed mix shall be spread on disturbed areas as directed by the Construction Manager. Seeding prescriptions shall conform with specifications in the design report, revegetation plan, plant list and materials list.

TEMPORARY DIVERSION PROCEDURES

1. USFWS shall be notified at least 72 hours prior to activation or deactivation of all temporary bypass channels. The phone number for USFWS office is 406-793-7400. USFWS shall determine if it is necessary to conduct a fish rescue.

2. Temporary diversions shall be activated or deactivated incrementally in three equal stages to allow resident aquatic life to exit the dewatered area.

3. A period of approximately one hour shall be allowed between the first two stages.

4. A period of approximately 12 hours shall be allowed before the final stage. USFWS shall conduct fish rescues during the 12 hour period.

5. Upon notification from USFWS, the remaining flow shall be diverted.

6. Efforts shall be made to limit turbidity during diversion activation and deactivation. Material used to divert flow during staged diversions shall be clean and devoid of fines.

7. Efforts shall be made to limit disturbance to vegetation.

8. Efforts shall be made to avoid fatalities of aquatic life.

EQUIPMENT SPECIFICATIONS

1. The Contractor shall furnish all equipment necessary to construct the project. The Contractor shall mobilize all equipment to the project area as directed by the Construction Manager.

2. At a minimum, the Contractor shall provide the following equipment for this project:

Excavator - One (1) excavator shall be required. The equipment shall be a minimum of 20 metric ton(s). The bucket volume shall be a minimum of 1.25 cubic yard(s). The equipment shall be fitted with machine grade GPS. The bucket shall be equipped with a hydraulic thumb for grasping logs, rocks, and other materials. The equipment must be capable of crossing water and working on or adjacent to steep slopes. A chain shall be available for attaching culverts, pumps and other equipment or materials to the bucket for transport on-site.

Dump Truck - A minimum of two (2) dump trucks shall be required for this project. Trucks shall be off-road tracked and shall have a minimum bed volume of ten (10) cubic yards. Standard dump trucks may be required and will be coordinated with the contractor.

Front End Loader - One (1) front end loader may be required and will be coordinated with the contractor as needed. The minimum bucket volume shall be three (3) cubic yards. The bucket must be equipped with forks for transporting logs, rocks and other materials. A chain shall be available for attaching culverts, pumps and other equipment or materials to the bucket for transport on-site.

Skid Steer - One (1) skid-steer(s) all-surface loader shall be required. The equipment shall be equipped with sod tracks to minimize disturbance to fragile areas.

Trash Pump - Minimum of one (1) trash pump shall be required. Discharge capacity shall be at least 450 gpm (1 cfs). Total head lift shall be at least 95 ft. Pumps shall be equipped with at least 100 feet of 4" diameter outlet hose. A pipe wrench shall be available for attaching hoses. Fuel and oil shall be supplied for the trash pumps.

Chainsaw - Minimum of one (1) chainsaw shall be required. The chainsaw(s) must be capable of completely sawing logs of the diameter specified in the material specifications. Also, the chainsaw(s) must be capable of sawing HDPE or PVC culverts or pipes as noted in the material specifications.

3. All equipment shall be washed prior to mobilization to the site to minimize the introduction of foreign materials and fluids to the project site. All equipment shall be free of oil, hydraulic fluid, and diesel fuel leaks. To prevent invasion of noxious weeds or the spread of whirling disease spores, all equipment shall be power washed or cleaned to remove mud and soil prior to mobilization into the project area. It will be the Contractor's responsibility to insure that adequate measures have been taken.

4. Equipment shall be in a well-maintained condition to minimize the likelihood of a fluid leak. If a fluid leak does occur, the Construction Manager shall be notified immediately, and all work ceased until the leak has been rectified. At all times during the construction phase, fluid spill containment equipment shall be present on-site and ready for deployment should an accidental spill occur.

5. The Contractor shall maintain a complete tool set with commonly replaced parts (e.g. O-rings) to minimize downtime in the event of equipment malfunction. The Contractor shall have an emergency spill kit on site during the project.

CONSTRUCTION SPECIFICATIONS

1. Construction shall occur in accordance with the plan set, construction specifications, equipment specifications, material specifications, revegetation specifications and general specifications.

2. Prior to construction, construction areas will be staked out using a survey grade Global Positioning System (GPS), total station, or survey laser. The Construction Manager shall stake the locations of the construction access, stockpile locations, limits of disturbance, temporary diversion channels, temporary culverts, proposed channel centerline, proposed channel margins, channel bed features, floodplain extents, wetlands and all structures according to the plan set. Construction staking shall occur in accordance with the Survey Control Sheet. At a minimum, staking of features shall occur every 50 feet along the alignment. The Contractor shall minimize disturbance to grade stakes. If excessive disturbance to grade stakes by the Contractor occurs, it shall be the Contractor's expense to re-stake the project.

3. Construction access shall be determined by the Construction Manager. Construction equipment shall not cross private land unless permission is obtained from the landowner. The Contractor shall leave all gates, whether open or closed, as found.

4. Stream crossings shall be minimized during construction. If multiple crossings (10 or more) are expected, the contractor shall provide and install temporary culverts so that equipment can cross the stream without generating excess turbidity. Temporary culvert sizes shall accommodate 150% of expected base flow during construction. The Construction Manager shall specify the sizes and locations of the temporary culverts.

5. Prior to construction, temporary diversion channels shall be constructed to divert water away from construction areas. Temporary diversion channels shall be located and constructed according to the design report or plan set. Temporary diversion channels constructed in fine soils such as sand, silt, or organic material shall be completely lined with fabric to prevent erosion. The Contractor shall use "Ecology Blocks" backed with gravel fill, or an approved equal, for constructing cofferdams for temporary diversion channels. The Contractor shall divert water incrementally into the temporary diversion channel to minimize turbidity and permit fish to move out of the dewatered channel segments. The Contractor shall notify the Construction Manager prior to dewatering channel segments. The Construction Manager shall notify a qualified fish biologist of possible fish rescue needs.

6. Straw bales and silt fencing shall be available and installed by the Contractor if deemed necessary by the Construction Manager. Construction fencing (limits of disturbance) shall be installed by the Contractor if deemed necessary by the Construction Manager.

7. Initially, the Contractor shall excavate the channel to approximate design dimensions using the excavator. Excavation shall comply with construction stakes and the plan set. Excavation shall establish channel elevations within one-half foot of final elevations. The Construction Manager shall inspect the channel excavation for compliance with the plan set. All excavated materials shall be stockpiled on-site, above the bankfull channel until hauled off-site or used on-site. Disturbance to riparian vegetation, channel banks and sod shall be minimized. Excavated sod and riparian shrub transplants shall be carefully stockpiled and reused for planting floodplains or stream banks.

8. After excavating the channel, the Contractor shall install the grade control, bank stabilization and habitat structures using the excavator. Each structure shall be constructed in accordance with the locations and specifications provided in the plan set. The Construction Manager shall inspect and approve all structures prior to backfilling.

9. After all structures are installed, the channel will be shaped to within 0.3 feet of the final elevations specified on the plan set using an excavator. The Construction Manager shall check the final elevations for compliance with the plan set. All excavated materials shall be stockpiled on-site, above the bankfull channel until hauled off-site or used on-site. Disturbance to riparian vegetation, channel banks and sod shall be minimized.

10. Upon notification from the Construction Manager, the Contractor shall divert water incrementally into the new channel. Efforts shall be made to minimize turbidity and permit fish to move out of the dewatered channel segments. Release of water into the new channel shall occur in accordance with the construction phasing approach outlined in the design report.

11. The Contractor shall remove excess materials, temporary culverts and equipment from the stream corridor and stockpile at an approved site. The Contractor shall regrade disturbed areas and construction access roads to their original grades. The Contractor shall treat compacted soil areas including access roads and material stockpile areas. The Contractor shall remove soil from the project site if the soil is tainted with petroleum-based fluids.

RIVER DESIGN GROUP, INC.
311 SW Jefferson Avenue
Corvallis, OR 97333
tel.541.738.2920
fax.541.738.8324
5098 Hwy 93 South
Whitefish, MT 59937
tel.406.862.4927
fax.406-862-4963

SPECIFICATIONS

Owl Creek Restoration Project
Condon, Montana

NO.	DATE	BY	DESCRIPTION	CHK
1	7-20-11	NW	RESTORATION PLAN	JM

PROJECT NUMBER
RDG-10-068

SHEET NUMBER
SP-1